

Notice of Allowability

Application No.

10/766,974

Examiner

James D. Stein

Applicant(s)

SCHEUER ET AL.

Art Unit

2874

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to the amendment filed on 03/16/06.
2. ☒ The allowed claim(s) is/are 2-11 and 13-16.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☒ Interview Summary (PTO-413), Paper No./Mail Date 0506.
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____

Michelle R. Connelly-Cushwa
MICHELLE CONNELLY-CUSHWA
PRIMARY EXAMINER

James D. Stein
James D. Stein
Patent Examiner, AU 2874

DETAILED ACTION

This Office Action is responsive to the amendment filed on 03/16/06, which has been fully considered and entered. Claims 1, 3, 4, and 13 have been amended, and claims 12 and 17-20 have been cancelled. As a result of the amendment (03/16/06), in addition to an Examiner's Amendment that follows, claims 2-11 and 13-16 are pending in the application.

EXAMINER'S AMENDMENT

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Daniel Dawes on 05/22/06.

In order to place the application in a condition for allowance, the claims have been amended as follows:

Claim 1 (cancelled)

Claim 2 (currently amended) The structure of claim ~~13~~ wherein the channel has an external side and an internal side and where the gratings disposed on the external and internal sides are different.

Claim 5 (currently amended) The structure of claim ~~13~~ wherein the shape of the resonator is circular.

Claim 6 (currently amended) The structure of claim ~~13~~ wherein the shape of the resonator is oval.

Claim 7 (currently amended) The structure of claim 13 wherein the index of refraction of the guiding core is smaller than the index of refraction of the surrounding distributed gratings.

Claim 9 (currently amended) The structure of claim 13 wherein the distributed gratings are made of dielectric material.

Claim 10 (currently amended) The structure of claim 13 wherein at least part of the substrate is "active" and able to provide optical gain.

Claim 11 (currently amended) The structure of claim 13 wherein the distributed gratings are comprised of alternating index layers.

Claim 13. (currently amended) An-optical resonator with large free spectral range (FSR) and low losses comprising:

an optical substrate;

a guiding channel defined in the substrate; and

at least one radial Bragg reflector adjacent to the guiding channel to confine light therein,

where the guiding channel and adjacent radial Bragg reflector form a combination with a radial structure, ~~wherein the profile is a periodic function superimposed on a decreasing function of radial position~~ wherein the combination is characterized by a refractive index profile defined by a periodic function superimposed on a decreasing function of radial position.

Allowable Subject Matter

Claims 2-11 and 13-16 are allowed.

The following is an examiner's statement of reasons for allowance:

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With regard to claims 2-11, none of the prior art of record discloses or suggests the resonator structure previously claimed, wherein the index profile and widths of the gratings determined by the relationships as limited by the claims.

With regard to claims 13-16, none of the prior art of record discloses or suggests the resonator structure previously claimed, wherein the guiding channel and adjacent radial Bragg reflector form a combination with radial structure, the combination characterized by a refractive index profile defined by a periodic function superimposed on a decreasing function of radial position. Wu teaches that the inner grating is a second order grating.

These features provide for a unique micro-ring resonator with a high FSR response and low losses. It would not have been obvious to one of ordinary skill in the art to modify the prior art to achieve the claimed invention, as there is no suggestion in the prior art that the claimed features would be advantageous in any way.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to James D. Stein whose telephone number is (571) 272-2132. The examiner can normally be reached on M-F (8:00am-4:30pm).

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rodney Bovernick can be reached on (571) 272-2344. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



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